STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Programming of Mobile Devices		**1010802121010814075**

Field of study	Profile of study (general academic, practical)	Year /Semester
Electronics and Telecommunications	**general academic**	**1 / 2**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
Information and Communication	**English**	**elective**

Cycle of study:	Form of study (full-time,part-time)
Second-cycle studies	**full-time**

No. of hours				No. of credits
Lecture: **2**	Classes: **1**	Laboratory: **1**	Project/seminars: **-**	**4**

Status of the course in the study program (Basic, major, other)	(university-wide, from another field)
major	**from field**

Education areas and fields of science and art	ECTS distribution (number and %)
technical sciences	**4 100%**
Technical sciences	**4 100%**

Responsible for subject / lecturer:

dr inż. Adrian Kliks
email: akliks@et.put.poznan.pl
tel. +48 61 665 3913
Faculty of Electronics and Telecommunications
ul. Piotrowo 3A 60-965 Poznań

Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	K1_W09 ? Knows the rules of preparing the computer programs, has the grounded knowledge in computer science and programming, knows the syntax of various programming languages, such as C, C++, C#, Matlab K1_W23 ? Knows the fundamentals of the functioning of the operating systems and databases. K2_W02 ? Has the basic knowledge in the area of creating and architecture of the programmable chips and of the potential of their practical application K2_W06 ? has the grounded and advanced knowledge on current wireless communications systems
2	**Skills**	K1-U01 ? Can find necessary information in the literature and various resources, prepared in Polish and English; can integrate and interpret the possessed information, and draw conclusions based on them K1_U05 ? Can make self-study K1_U13 ? Can implement algorithms by means of selected programming languages, such as C or C#
3	**Social competencies**	K1-K01 - is aware of his/her knowledge and skills limitations; can precisely formulate the problems; understand the need of further study and of systematic reading of scientific publications in the range of the studied part of science; K1_K02 - Is aware of the need for professional treatment of the problems to be solved and for taking responsibility for proposed solutions K1_K03 ? is aware of his/her responsibilities for the developed systems

Assumptions and objectives of the course:

The main goal of the course is to develop student?s skills in programming of mobile terminals. After completing the course students will be able to implement their own application, ready for release in Internet markets. Particular attention will be put on the devices using Android system.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Possesses the grounded knowledge in the area of programming of mobile terminals - [K2_W03]
2. Possesses the knowledge about the possibilities of usage of various module and resources available in nowadays mobile terminals - [K2_W03]

Skills:

http://www.put.poznan.pl/

1. Possesses the skills of using various resources available in Internet (usually in English) - [K2_U01]
2. Is able to prepare the complete application together with the required documentation - [K2_U02]

Social competencies:

1. Is aware of his/her knowledge and skills limitations; understand the need of further study - [K2_K04]
2. Is aware of the need for professional treatment of the problems to be solved and for taking responsibility for proposed solutions - [K2_K05]
3. Is aware of his/her responsibilities for the developed systems - [K2_K06]

Assessment methods of study outcomes

Theoretic knowledge (based on the lectures) will be checked during the oral exam scheduled on the 14th week.
The exercises will be credited based on the presentation of the application prepared by each student in form of the project.
Laboratories will be credited based on the notes made for each laboratory unit.

Course description

Lecture - subjects:
1. Description of the programming environment (Android)
2. Description of the Project structure, resources used in the project, the meaning of the R.java file
3. Supporting multi-language applications
4. Layout descriptions
5. Description of the life-cycle of each activity
6. Running application on the emulator and device
7. Description of particular classes: intent, service, broadcast, content provider
8. Description of the "manifest.xml" file content
9. Exceptions and threads
10. Menus vs. Action-Bar
11. Usage of listeners and handlers
12. Widgets
13. Usage of sensors
14. Ways of application?s monetizing, certification, releasing and publishing

Exercises ? students realize their own projects

Laboratories:
1. Preparation of the programming tools
2. Implementation of the "Hello World" application
3. Implementation of the "Ticket-Machine" application, part 1 (multi-activity approach)
4. Implementation of the "Ticket-Machine" application, part 2 (toasts and dialogs)
5. Implementation of the "ScreenSaver" application ? work with timers
6. Creation of the own Custom View element
7. Implementation of the application using light sensor, accelerometer and other sensors available on the hardware device
8. Implementation of the simple widget with associated appropriate menu

Basic bibliography:

1. http://developer.android.com/index.html

Additional bibliography:

Result of average student's workload

Activity	Time (working hours)
1. Preparation to the exam	10
2. Preparation to each laboratory unit	1
3. Participation in the course	60

http://www.put.poznan.pl/

Student's workload		
Source of workload	**hours**	**ECTS**
Total workload	105	4
Contact hours	65	2
Practical activities	45	2

http://www.put.poznan.pl/